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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/827,337 | 04/20/2004 | Jun Tsutsumi | 025720-00031 | 2918 |

7590

09/08/2005

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EXAMINER

SUMMONS, BARBARA

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------|-----------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/827,337 | TSUTSUMI ET AL. | |
| | Examiner | Art Unit | |
| | Barbara Summons | 2817 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-7 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 8-11 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/20/04 & 7/21/05</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 8-10 are rejected under 35 U.S.C. § 102(b) as being anticipated by Lee U.S. 5,864,260.

Figs. 3 and 4 of Lee disclose a duplexer comprising: two surface acoustic wave (SAW) resonator filters 120 and 160 (see col. 2, lines 47-59) that are formed on one substrate 100; and a ground electrode 190 is provided between the two SAW filters on the substrate, wherein the ground electrode 190 covers more than half the full length of, since it does cover the entire length of the two SAW filters facing each other to completely shut the two filters off from each other.

3. Claims 1, 2 and 11 are rejected under 35 U.S.C. § 102(b) as being anticipated by Taniguchi JP 2003-51731 (cited by Applicants).

Regarding claims 1 and 11, Fig. 1 of Taniguchi discloses a duplexer comprising: two SAW filters 1 and 2 formed on one substrate 10 that can be 36 degree Y-cut X-propagating lithium tantalate (see section [0023]), with at least one of the filters being a ladder filter (they are both ladder filters); and wherein the positional difference between

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the centers in the surface acoustic wave propagating direction of each two neighboring series-arm resonators, e.g., 3a in filter 1 (see Fig. 3), is zero because they are perfectly aligned, and therefore it is smaller than a fourth of the length in the propagating direction (left to right in Fig. 1) of the comb electrodes have the larger number of electrode finger pairs of the comb electrodes of the two neighboring resonators, since "a fourth of a length..." must be a non-zero number. Regarding claim 2, there are three series resonators, and once again, because the positional difference is zero, it must be smaller than "a fourth of the length..." recited in claim 2, since "a fourth of the length..." cannot be a non-zero number.

Allowable Subject Matter

4. Claims 4-7 are allowable over the prior art of record.
5. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or fairly suggest a duplexer comprising two SAW filters formed on one substrate and having the recited relationships between the angles formed by the recited lines. Most of the prior art references show the

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arrangement of the resonators on the substrate, but then just show a blank chip in the package, so the relationship between the lines drawn between the chip input/output terminals and between the package input/output terminals cannot be determined. Also, as discussed below with respect to references of interest, much of the prior art shows the series resonators or input/outputs aligned so that they do not deviate from the line perpendicular to the SAW propagation direction. Such is the case with the Taniguchi reference, applied above, which does not have this "deviation" feature that is required by claim 3.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ikata et al. U.S. 6,380,823 discloses duplexers with two SAW ladder filters on the same substrate (Figs. 32 and 33) that are placed in the packages of Figs 11a and 11b.

Ehara et al. U.S. 6,765,456 discloses a duplexer having two SAW filters on the same substrate (see Figs. 13 and 20), but the line between the on-chip input/output terminals does not deviate from the perpendicular to the SAW propagation direction.

Ikada U.S. 6,369,672 also shows such a SAW duplexer (Fig. 14) wherein the line between the ladder filter on-chip input/output terminals does not deviate from the line perpendicular to the SAW propagation direction.

Urabe et al. U.S. 6,566,981 discloses a SAW single-chip duplexer with a ground electrode separating the transmitting and receiving filters (Fig. 19).

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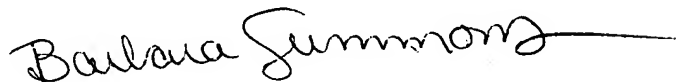
Nishizawa et al. U.S. 6,469,593 appears to be related to the placement of the on-chip input/output pads of a SAW filter (see Figs. 9, 10A and 10B).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Summons whose telephone number is (571) 272-1771. The examiner can normally be reached on M-Th, M-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 271-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bs
September 1, 2005



BARBARA SUMMONS
PRIMARY EXAMINER